Cancer Incidence & Mortality in Lancaster County 1990-2001

(Summary Report 1990-2001)

March 2004

Lincoln-Lancaster County Health Department
Lincoln, Nebraska

LINCOLN LANCASTER COUNTY HEALTH DEPARTMENT

CITY OF LINCOLN
NEBRASKA

Lancaster County Cancer Incidence Report

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Background

Cancer is the second leading cause of death in the United States and in the State of Nebraska. In the US, approximately 1,248,900 new cases were expected to be diagnosed in 2002 and about 555,500 Americans were expected to die of cancer, more than 1,500 a day. Everyone is potentially at risk for developing cancer although the occurrence increases in middle age. The American Cancer Society indicates that 77% of all cancer is diagnosed at age 55 and older. In the US, the lifetime risk of developing cancer is a little more than 1 in 3 for women and a little less than 1 in 2 for men. In Lancaster County, 20%-25% of all deaths are linked to cancer every year. In recent years (1999, 2001), however, deaths due to cancer have surpassed deaths due to heart diseases – the leading causes of death in the US and the State. This shift in the death trend in the county emphasized a need for epidemiological assessment of cancer incidence. This summary report provides the most recent data on cancer incidence and mortality in the residents of Lancaster County.

Lancaster County cancer incidence data for this report was obtained from the Nebraska Cancer Registry (NCR). NCR was established in 1986 and first began collecting data on people who were diagnosed with any benign or malignant tumor in 1987. Currently Nebraska Health and Human Services System (NHHSS) manages the NCR, and data collection and editing are performed by Nebraska Methodist Hospital of Omaha, under contract to the Nebraska Medical Foundation. Lincoln-Lancaster County Health Department receives county specific data directly from NHHSS.

Methodology & Data Analysis

Data on Lancaster County residents who were diagnosed and treated for malignant and in situ tumors was collected. However, all benign tumors, in situ and localized squamous cell carcinomas of skin were discarded from the registry. For cancer incidence, all primary cancer sites are coded according to the International Classification of Diseases for Oncology (ICD-O-2). Cancer mortality data for comparative analysis with the incidence rates were extracted from vital statistics data that Lancaster County receives annually from NHHSS. Deaths that occurred before 1999 were coded with the Ninth Edition of the International Classification of Disease (ICD-9) and deaths recorded in or after 1999 are coded with Tenth Edition of the International Classification of Disease (ICD-10). Cancer incidence and mortality data for the U.S were obtained from the most recent annual statistical report published by SEER (Surveillance, Epidemiology, and End Results) program and those for she State of Nebraska were from " Cancer Incidence and Mortality in Nebraska: 1999" published by NHHSS in June 2002.

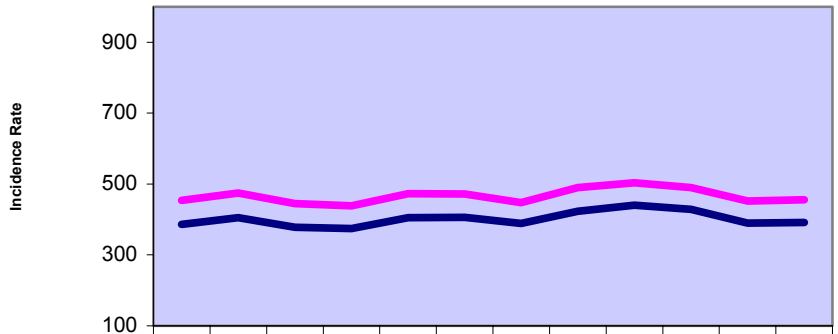
Cancer incidence and death rates presented in this report are based on data from 1990 to 2001. Since population differ from one another with respect to their age distribution, and because disease also varies by age, incidence and death rates are "adjusted" to a standard population to allow comparisons. All crude incidence rates and death rates for each year were adjusted for age differences in population in order to have a valid comparison between the County, State and the Nation. As the 2000 US standard million population has been designated as the new standard for all age-adjusted rates, to assure data consistency, this new standard population was used for age-adjustment of all cancer incidence and mortality rates presented in this report.

Overall Incidence

In 2001, 979 new cancer cases were diagnosed in Lancaster County, translating to a crude rate of 391 per 100,000 population. When adjusted for age differences, this came out to be 456 cases for every 100,000 population (Figure 1). Despite year-to-year statistically insignificant variations, the overall cancer incidence remained static for the County. A similar trend was also observed in the State and in the Nation (Figure 2). Males had a higher cancer incidence than females, although, the difference decreased since 1996 (Figure 3). In 2001, the age-adjusted incidence rate for cancer was 503 per 100,000 male population and 425 per 100,000 female population.

Figure 1: Cancer Incidence Rate

Lancaster County (1990-2001)



	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Crude Incidence rate	386	405	378	374	405	406	388	423	440	428	390	391
Age adjusted Incidence rate	454	475	445	439	473	472	447	490	504	490	452	456

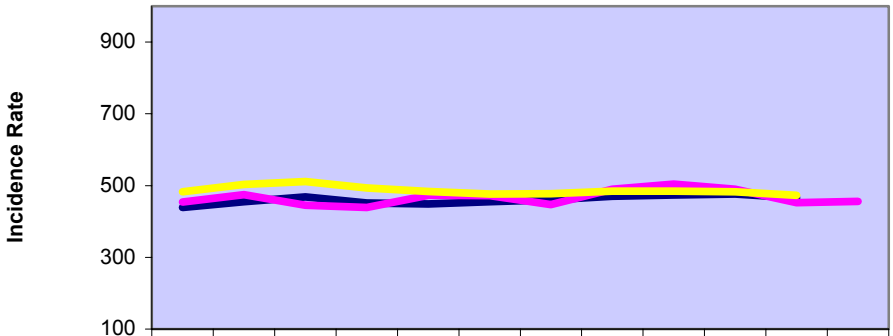
Rate per 100,000 population

Year

Source: Lincoln-Lancaster County Health Department

Figure 2: Cancer Incidence Rate

Lancaster County, Nebraska & US (1990-2001)



	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Nebraska	439	455	468	452	449	455	460	470	474	476	466	N/A
Lancaster County	454	475	445	439	473	472	447	490	504	490	452	456
United States	483	503	511	494	484	476	478	484	485	483	473	N/A

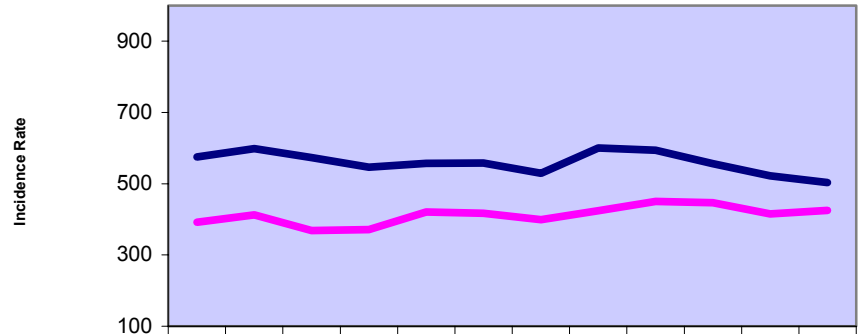
Rate per 100,000

Year

Age Adjusted

Source: Lincoln-Lancaster County Health Department

Figure 3: Cancer Incidence by Gender
Lancaster County (1990-2001)



	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Age adjusted rate for male	575	599	573	547	557	558	530	600	594	556	522	503
Age adjusted for female	392	413	368	371	420	417	399	425	450	447	415	425

Rate per 100,000 population.

Year

Source: Lincoln-Lancaster County Health

Public Health Implications:

Healthy People 2010 goals and objectives for the United States, Nebraska and Lincoln and Lancaster County all focus on reducing the incidence and mortality related to cancer and on improving the quality of life for cancer survivors.

The incidence of cancer can be reduced by efforts directed at cancer prevention and early detection. This includes smoking cessation, improved dietary habits, weight control and physical activity. The timely use of recommended cancer screening examinations is basic to identify cancer in early, treatable stages. Differences in racial and ethnic incidence and mortality rates for various cancer sites are well documented and emphasize the need for focused efforts to eliminate disparities. Community-wide, comprehensive efforts will be necessary to achieve healthy lifestyles in a healthy environment.

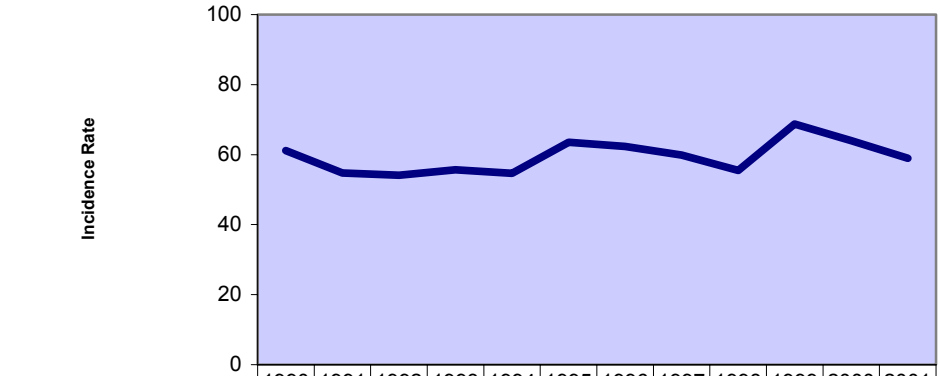
Lung Cancer

Cancer of the lung and bronchus is the second most common cancer among both men and women and is the leading cause of cancer death in both sexes. There were an estimated 164,100 new cases of lung cancer and an estimated 156,900 deaths from lung cancer in the United States in 2000. Among all cancer deaths in the State and the County, it has been the leading causes of death for many years. In 2001, it caused 119 deaths out of 1681 deaths in Lancaster County. Smoking is the single most well established attributable risk factor for lung cancer. Other risk factors include exposure to secondhand tobacco smoke, occupational exposure, and indoor and outdoor air pollution. The higher the number of cigarettes smoked per day the higher the risk of dying from lung cancer. However, cessation of smoking decreases the risk of having lung cancer.

Lung Cancer Incidence

Overall, lung cancer incidence rate in Lancaster County remained stable over the last twelve years (Figure 4). On average approximately 60 new cases were diagnosed every year for every 100,000 people.

Figure 4: Lung Cancer Incidence Rates
Lancaster County (1990-2001)



	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Age-Adjusted Rate	61	55	54	56	55	63	62	60	56	69	64	59

Rate per 100,000 population
Source: Lincoln-Lancaster County Health Department

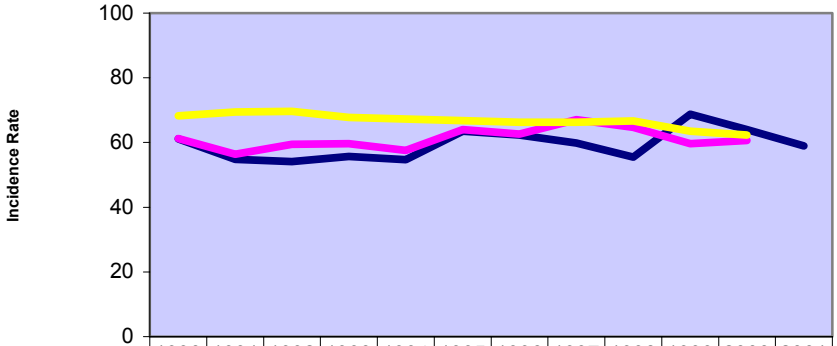
Figure 5 shows ten years comparative incidence rates among Lancaster County, the State of Nebraska and the Nation. The incidence of lung cancer in the State and in the County were somewhat similar but below the annual national incidence rate. The lung cancer incidence rate for men was higher than for women, however, it showed a gradual increase in rate for women and a simultaneous decline in rate for men (Figure 6).

Lung Cancer Deaths

Figure 7 shows death due to lung cancer in Lancaster County in comparison with the death rate of the State and the Nation. Similar to incidence rate, death due to lung cancer showed a stable trend over the years. Similarities in the number between the incidence and death rate reflects the poor prognosis of persons with lung cancer. Since men had a higher incidence rate, death rates were also higher among them compared to women (Figure 8).

Figure 5: Lung Cancer Incidence

Lancaster County, Nebraska & US (1990-2001)



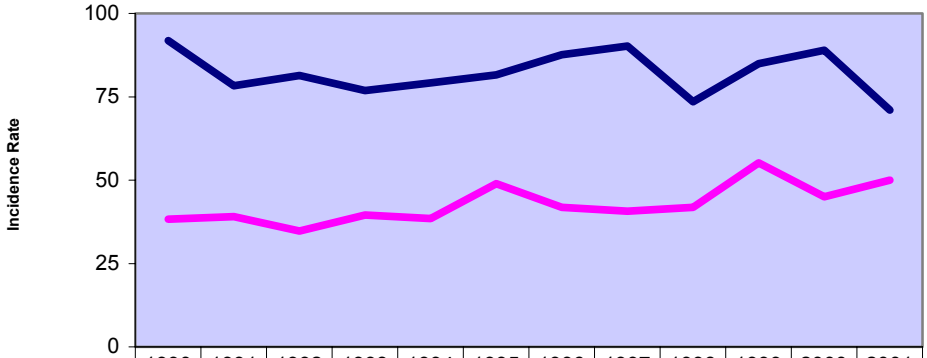
	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Lancaster County	61	55	54	56	55	63	62	60	56	69	64	59
Nebraska	61	56	59	60	58	64	63	67	65	60	61	N/A
United States	68	69	70	68	67	67	66	66	67	64	62	N/A

Rate per 100,000 population Year *Age-adjusted rate*

Source: Lincoln-Lancaster County Health Department

Figure 6: Lung Cancer Incidence by Gender

Lancaster County (1990-2001)



	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Male	92	78	81	77	79	82	88	90	74	85	89	71
Female	38	39	35	40	38	49	42	41	42	55	45	50

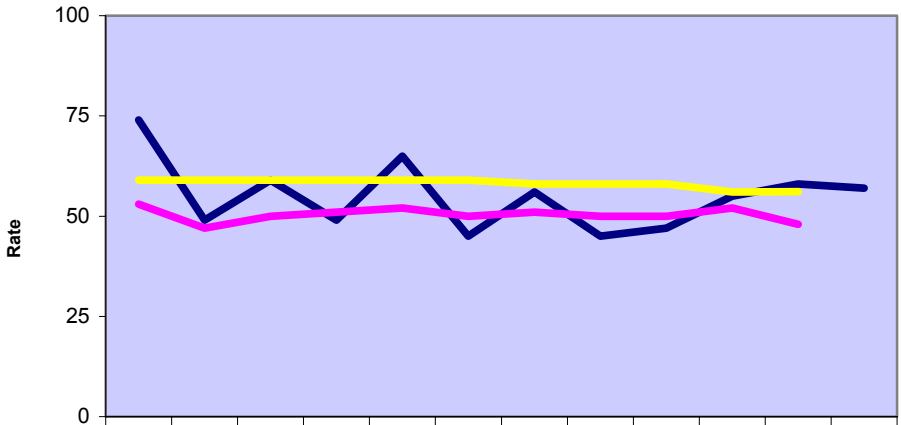
Rate per 100,000 population *Age-adjusted rate*

Year

Source: Lincoln-Lancaster County Health Department

Figure 7: Lung Cancer Deaths

Lancaster County,Nebraska & United States (1990-2001)



	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Lancaster County	74	49	59	49	65	45	56	45	47	55	58	57
Nebraska	53	47	50	51	52	50	51	50	50	52	48	N/A
United States	59	59	59	59	59	59	58	58	58	56	56	N/A

Rate per 100,000 population

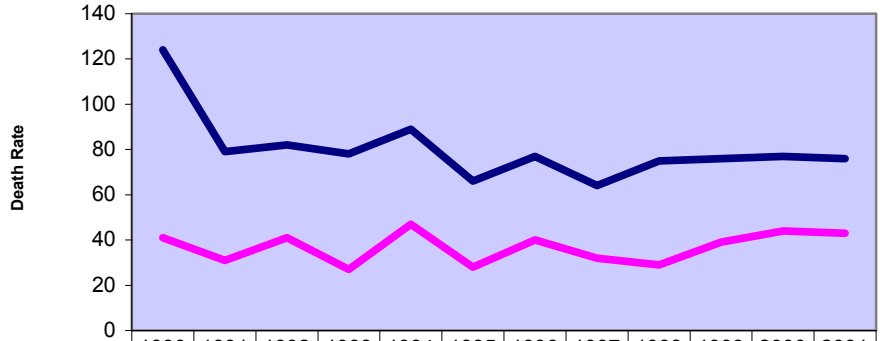
Year

Age adjusted rate

Source: Lincoln-Lancaster County Health Department

Figure 8: Lung Cancer Death by Gender

Lancaster County (1990-2001)



	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Male	124	79	82	78	89	66	77	64	75	76	77	76
Female	41	31	41	27	47	28	40	32	29	39	44	43

Rate per 100,000 population

Year

Age adjusted rate

Source: Lincoln-Lancaster County Health Department

Public Health Implications:

It is estimated that approximately 30% of cancer deaths and 87% of lung cancer deaths are related to smoking causes. As no screening procedures are readily useable, only 15% of lung cancers are diagnosed when the disease is still localized.

Since smoking is the most important risk factor in the development of this disease, efforts to decrease the incidence of lung cancer focus on reducing the initiation of smoking and increasing cessation of those who use tobacco. The Tobacco Free Nebraska Program, funded by State Tobacco Settlement funds, is focused on the goals of keeping children from starting to use tobacco and protecting the public and employees from secondhand tobacco smoke. Within Lincoln and Lancaster County, this program emphasizes counter-marketing, surveillance, school and community tobacco education programs, tobacco cessation, enforcement, and smoke-free environments. Strategies also include working with community partners, policy makers and legislators to decrease the impact of smoking and the effects of environmental exposures to smoke on persons in Lancaster County. This highly successful effort is a Centers for Disease Control and Prevention (CDC) model program which contribute to a significantly decrease in smoking rates in adolescents and a substantial increase in the number of smoke free restaurants and worksites in Lancaster County.

Colorectal Cancer

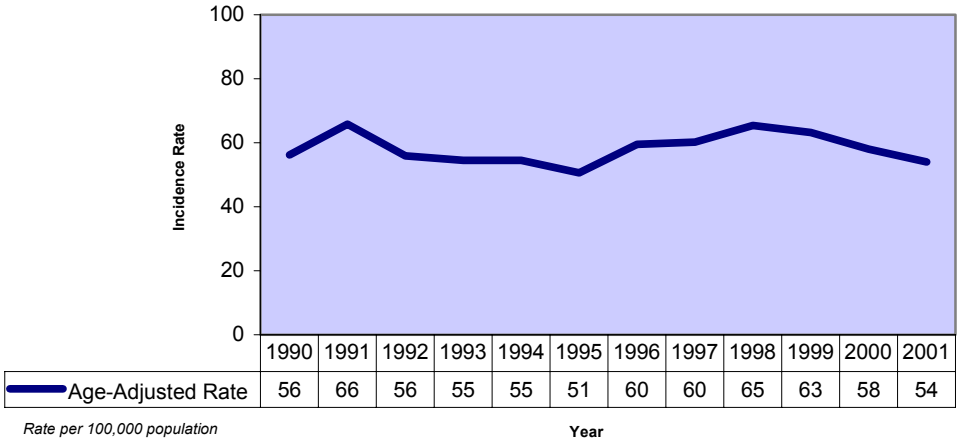
Cancer of the colon and rectum, is the second-leading cause of cancer related deaths in the United States. Only lung cancer costs more lives. Approximately 155,000 Americans are diagnosed with colorectal cancer and 50,000 die from it annually. Many colorectal cancers begin with noncancerous (benign) clumps of cells called adenomatous polyps which over time becomes cancerous.

Risk factors for colorectal cancer include the high intake of red meat and fat, history of conditions like intestinal polyps (noncancerous mushroom-shaped growths), chronic inflammatory bowel disease (ulcerative colitis or Crohn's colitis), previous colorectal cancer and genetic mutations. Colorectal cancer is more likely to occur in people get older mostly people over 50 years of age. However, colorectal cancer can occur at younger ages, even, in rare cases, in the teens. Reductions in colorectal cancer morbidity and mortality can be achieved through the identification and removal of adenomatous polyps and detection and treatment of early-stage colorectal cancers. Colorectal cancer screening tests have been shown to accurately detect of early stage cancer and its precursors. When colorectal cancer is detected early, survival rates are much higher. Ninety-two percent of people who receive early treatment are still alive after 5 years. When adjacent organs or lymph nodes are affected, 64% of people survive 5 years and if the cancer is carried to distant organs, the rate drops to only 7%.

Colorectal Cancer Incidence

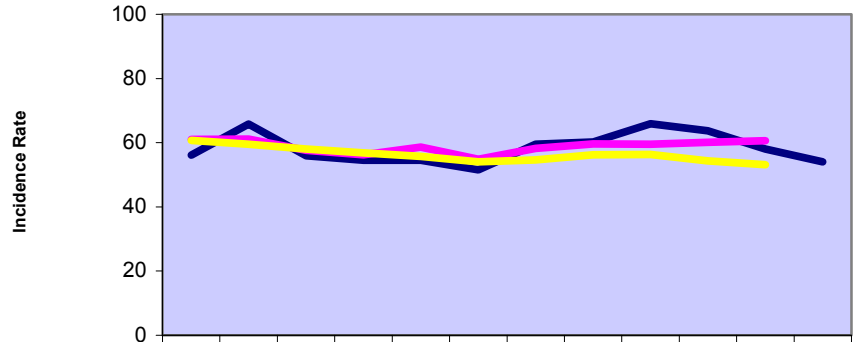
In 2001, 54 new colorectal cases were diagnosed for every 100,000 population in Lancaster County, which is a stable incidence rate, observed since 1990 (Figure 9). Except for 1991 and 1998, the 10-year incidence rate was similar to the incidence rates for that of the State and the Nation (Figure10).

Figure 9: Colorectal Cancer Incidence Rates
Lancaster County (1990-2001)



Source: Lincoln-Lancaster County Health Department

Figure 10: Colorectal Cancer Incidence
Lancaster County, Nebraska & US (1990-2001)



	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Lancaster County	56	66	56	55	55	52	60	60	66	64	58	54
Nebraska	61	61	58	56	59	55	58	60	60	60	61	N/A
United States	61	60	58	57	56	54	55	56	56	54	53	N/A

Rate per 100,000 population

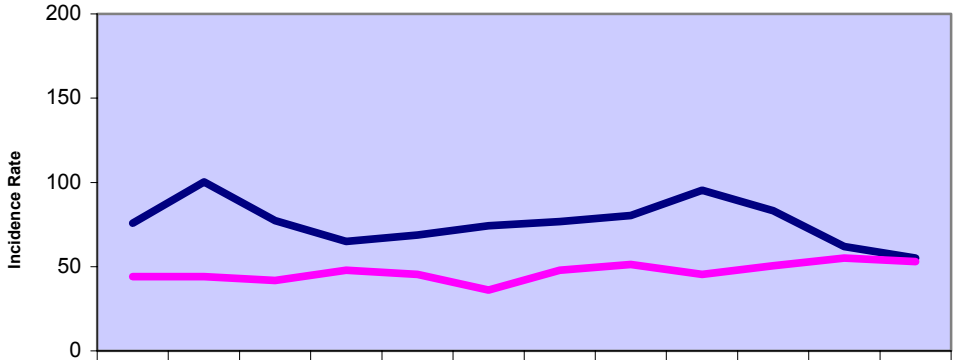
Year

Age-adjusted rate

Source: Lincoln-Lancaster County Health Department

Occurrence of new colorectal cancer cases year was higher for men than women every year except in 2001 (Figure 11).

Figure 11: Colorectal Cancer Incidence by Gender
Lancaster County (1990-2001)



	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Male	76	100	77	65	69	74	77	80	95	83	62	55
Female	44	44	42	48	45	36	48	51	45	51	55	53

Rate per 100,000 population

Year

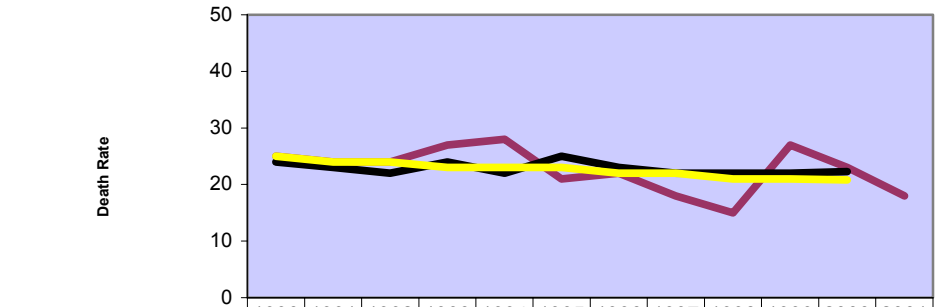
Age-adjusted

Source: Lincoln-Lancaster County Health Department

Colorectal Cancer Deaths

Figure 12 depicts year-by-year death rates in Lancaster County, the State and the Nation due to colorectal cancer. On average 23 people died each year due to colorectal cancer for every 100,000 Lancaster County residents. Similar to incidence rates, death rates for the County were somewhat equal to the death rates of the State and the Nation recorded in the past 12 years.

Figure 12: Colorectal Cancer Deaths
Lancaster County, Nebraska & United States (1990-2001)



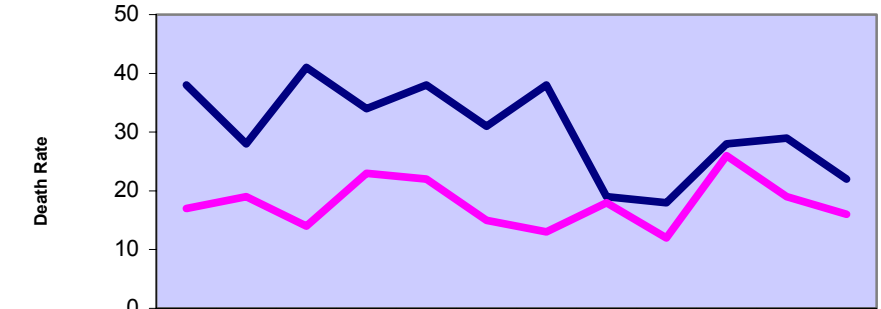
	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Lancaster County	25	24	24	27	28	21	22	18	15	27	23	18
Nebraska	24	23	22	24	22	25	23	22	22	22	22	N/A
United States	25	24	24	23	23	23	22	22	21	21	21	N/A

Rate per 100,000 population — Year — *Age adjusted rate*

Source: Lincoln-Lancaster County Health Department

Men had higher death rates due to colorectal cancer than women; however, the difference appeared to have decreased since 1997. In 2001, 22 men died because of colorectal cancer for every 100,000 men compared to 16 women for every 100,000 women (Figure 13).

Figure 13: Colorectal Cancer Deaths by Gender
Lancaster County (1990-2001)



	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Male	38	28	41	34	38	31	38	19	18	28	29	22
Female	17	19	14	23	22	15	13	18	12	26	19	16

Rate per 100,000 population — Year — *Age adjusted rate*

Source: Lincoln-Lancaster County Health Department

Public Health Implications:

Healthy food choices and physical activity are key to the prevention of colorectal cancer. This disease is curable if found at an early stage. Current American Cancer Society screening guidelines for colorectal cancer are a fecal occult blood test (FOBT) every year, a flexible sigmoidoscopy every five years, an annual fecal occult blood test and flexible sigmoidoscopy every five years, a double-contrast barium enema every five years or a colonoscopy every 10 years, beginning at age 50. In 1999, only 25.9% of Nebraskans had a recent fecal occult blood test and 31.8% had a recent sigmoidoscopy or colonoscopy. In an attempt to increase the rate of screening, a legislative bill mandating insurance coverage for colorectal screening tests was introduced during the 2003 session.

The Lancaster County Crusade Against Colorectal Cancer, supported by a Nebraska Health Care Cash Fund grant, is a local coalition including professional and citizen representation. Efforts of this group are focused on increasing awareness of risk factors for colorectal cancer, promotion of age-appropriate screening, community and professional education, and advocacy with decision makers regarding access to care issues and insurance barriers for persons at risk. These strategies and other collaborative efforts to emphasize healthy lifestyle choices are essential to decrease the colorectal cancer burden within Nebraska.

Female Breast Cancer

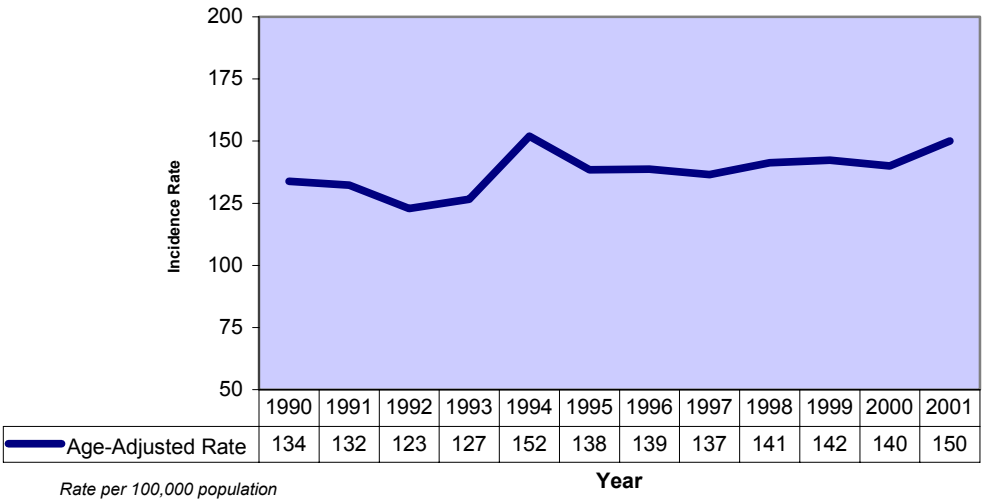
Breast cancer is the most common type of cancer among women in the United States. More than 180,000 women are diagnosed with breast cancer each year. In Nebraska, between 1996 and 2000, approximately 6,000 women were diagnosed with malignant breast tumor and 1,300 died from it. The exact cause of breast cancer is not known. However, studies show that the risk of female breast cancer increases with age. Risk is higher in women with a personal or family history of breast cancer, biopsy confirmed atypical hyperplasia, a long menstrual history (menstrual period that started early and ended late in life), obesity after menopause, women who never had children or had a first children after age 30 or who consume one or more alcohol beverages per day. The inherited susceptibility genes BRCA 1 and BRCA 2 account for approximately 5% of female breast cancer cases. This disease is very uncommon in women under the age of 35. Most breast cancers occur in women over the age of 50 and the risk is especially high for women over age 60.

Breast cancer screening with a mammogram has been shown to be the best tool available for finding breast cancer early even before the symptoms appear. This can significantly decrease the risk of dying from breast cancer. A clinical breast exam by a physician and self-examination of the breast are also important for early detection of breast cancer.

Breast Cancer Incidence

In 2001, 178 new cases of female breast cancer were diagnosed for every 100,000 women in Lancaster County. The incidence rate has increased since 1990 (Figure 14). This trend was consistent with the incidence trends for both the State and the Nation, although, rates for the County and the Nation were slightly higher than the incidence rates for the State (Figure 15).

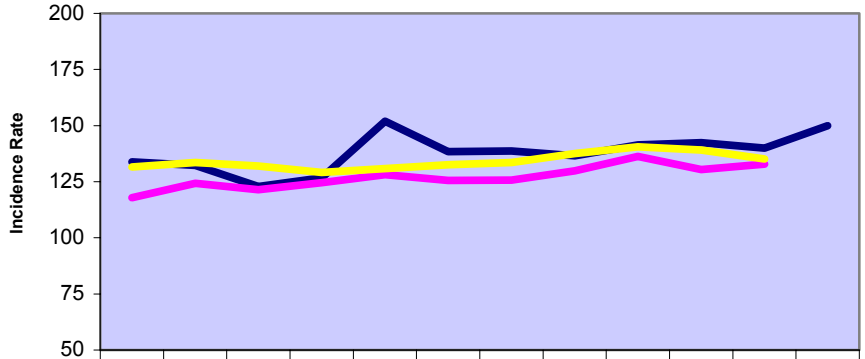
Figure 14: Female Breast Cancer Incidence Rates
Lancaster County (1990-2001)



Rate per 100,000 population

Source: Lincoln-Lancaster County Health Department

Figure 15: Female Breast Cancer Incidence
Lancaster County, Nebraska & US (1990-2001)



	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Lancaster County	134	132	123	127	152	138	139	137	141	142	140	150
Nebraska	118	124	122	125	128	126	126	130	136	130	133	N/A
United States	132	134	132	129	131	133	134	138	141	139	135	N/A

Year

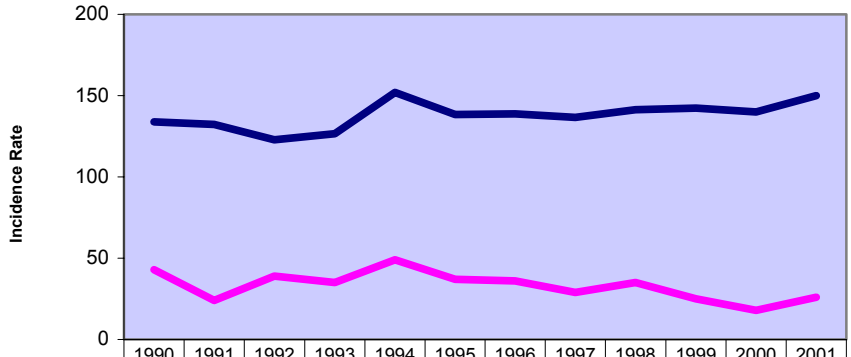
Rate per 100,000 population *Age-adjusted rate*

Source: Lincoln-Lancaster County Health Department

Breast Cancer Deaths

Figure 16 shows the comparison between the breast cancer incidence and death rate in the County. Death due to breast cancer was less despite a very high incidence rate, probably because of early detection and availability of advanced medical treatment. This further strengthens the importance of clinical and self-breast examination and mammogram screening for women over 40 years of age. Similar trends in breast cancer death were observed in the State and the Nation (Figure 17).

Figure 16: Female Breast Cancer Incidence & Death Rate
Lancaster County (1990-2001)



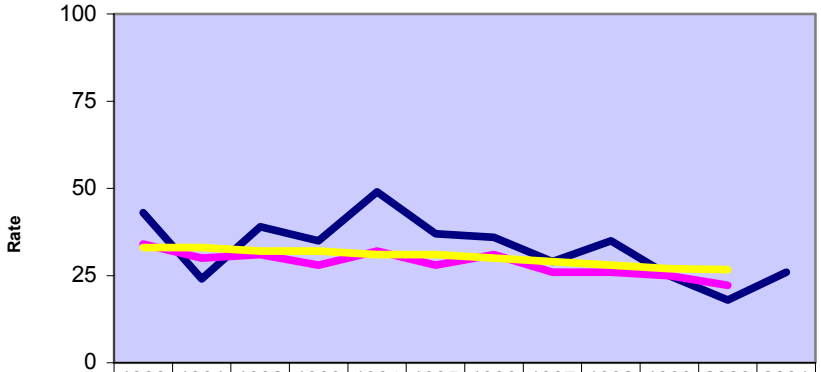
	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Incidence Rate	134	132	123	127	152	138	139	137	141	142	140	150
Death Rate	43	24	39	35	49	37	36	29	35	25	18	26

Year

Rate per 100,000 population *Age adjusted*

Source: Lincoln-Lancaster County Health Department

Figure 17: Female Breast Cancer Death Rate
Lancaster County, Nebraska & United States (1990-2001)



	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Lancaster County	43	24	39	35	49	37	36	29	35	25	18	26
Nebraska	34	30	31	28	32	28	31	26	26	25	22	N/A
United States	33	33	32	32	31	31	30	29	28	27	27	N/A

Rate per 100,000 population **Year** *Age adjusted* rate

Source: Lincoln-Lancaster County Health Department

Public Health Implications:

Early detection of female breast cancer through known screening procedures saves lives and increases treatment options for this disease. The American Cancer Society recommends that women 40 and over should have an annual mammogram, an annual clinical breast examination (CBE) by a health care professional and should perform monthly breast self-examinations (BSE). Women aged 20-39 should have a clinical breast examination by a health care professional every three years and should perform monthly breast self-examinations.* During 2000, 61.9% of women over 40 in Nebraska had a mammogram

In Nebraska, the Every Woman Matters Program (EWM) provides affordable, quality breast and cervical cancer screening for low to moderate income women aged 40-64 who are uninsured or under insured. This program, developed in 1990 by the Centers for Disease Control and Prevention, is also known as the National Breast and Cervical Cancer Early Detection Program. The Nebraska Medicaid Treatment Bill, passed during the 2001 legislative session, provided Medicaid treatment coverage for women screened in the EWM program who are diagnosed with cancer or pre-cancer of the breast or cervix. The addition of the Wisewoman (Well Integrated Screening and Evaluation for Women Across the Nation) component in 2002 includes cardiovascular and diabetic screening and programs promoting lifestyle change to prevent or reduce health risks. Educational efforts provided through EWM, the American Cancer Society and various community collaborators are key in promoting breast cancer awareness and referral to resources within the community.

**As of May, 2003, these recommendations have changed to yearly mammograms starting at age 40 and continuing as long as a woman is in good health, clinical breast exams about every 3 years for women in their 20's and 30's and every year for women 40 and over. Breast self-exams are optional for women starting in their 20's. Women should report any breast change promptly to their health care provider.*

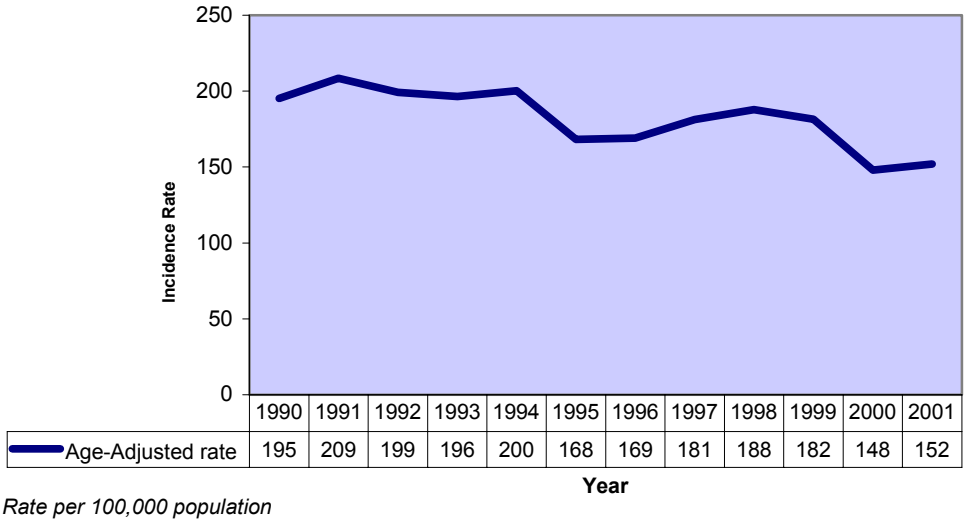
Prostate Cancer

The prostate is an important part of a man's urogenital system which is necessary for proper bladder control and normal sexual function. Prostate cancer is the most common cancer in US men. All men are at risk. The most common risk factor is age. More than 75 percent of men diagnosed with prostate cancer are over the age of 65. Initial screening tests for prostate cancer include a digital rectal examination (DRE), in which a doctor feels the prostate to check for abnormalities, and a blood test to detect the amount of prostate specific antigen (PSA) circulating in the blood.

Prostrate Cancer Incidence

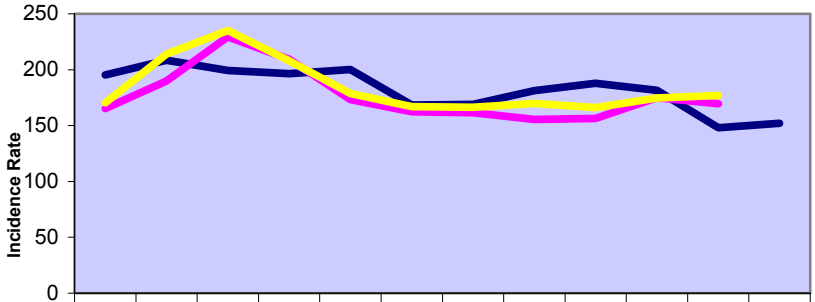
Occurrence of prostate cancer in Lancaster County has declined since 1990 (Figure 18). The incidence rate for the last 12 years was similar to the incidence rate for the State and the Nation (Figure 19).

Figure 18: Prostate Cancer Incidence Rate
Lancaster County (1990-2001)



Rate per 100,000 population
Source: Lincoln-Lancaster County Health Department

Figure 19: Prostate Cancer Incidence
Lancaster County, Nebraska & US (1990-2001)



	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Lancaster County	195	209	199	196	200	168	169	181	188	182	148	152
Nebraska	165	190	229	209	173	162	162	155	156	175	170	N/A
United States	170	214	235	208	179	167	166	170	166	175	177	N/A

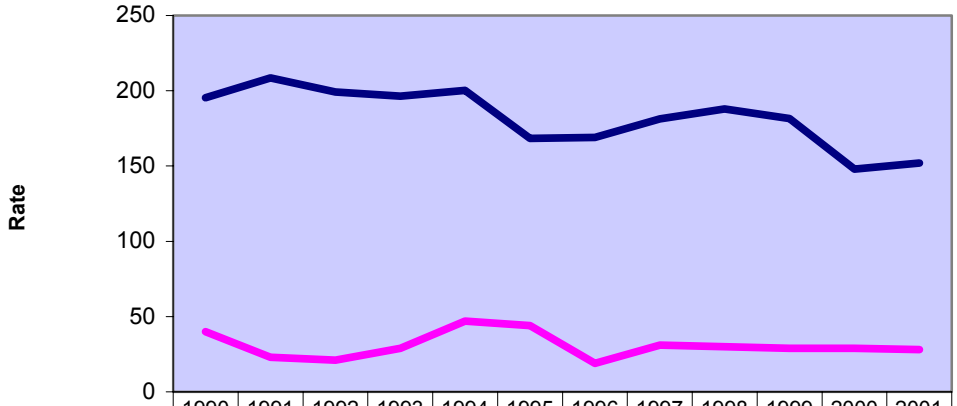
Year

Rate per 100,000 population *Age-adjusted rate*

Source: Lincoln-Lancaster County Health Department

Similar to female breast cancer, death due to prostate cancer was relatively low in comparison to its high incidence rate. This is probably due to early detection and treatment of the disease (Figure 20). Despite a lower death rate than incidence rate, prostate cancer is still the second leading cause of cancer death among men.

Figure 20: Prostate Cancer Incidence & Death Rate
Lancaster County (1990-2001)



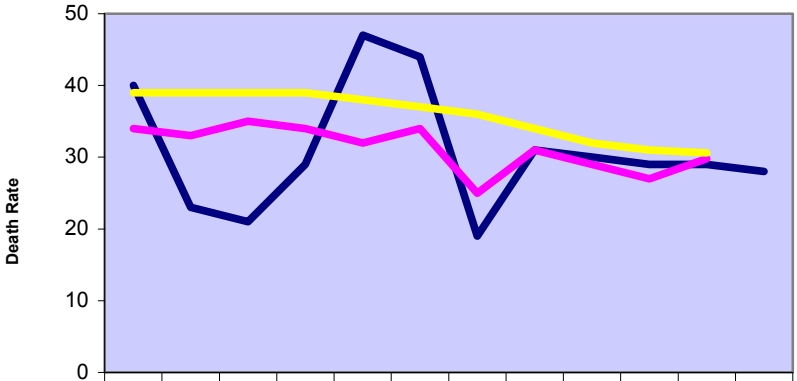
	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Incidence Rate	195	209	199	196	200	168	169	181	188	182	148	152
Death Rate	40	23	21	29	47	44	19	31	30	29	29	28

Rate per 100,000 population Year *Age adjusted*

Source: Lincoln-Lancaster County Health

Figure 21 shows comparative deaths due to prostate cancer among the County, State and the Nation. Except for 1994 and 1995 death rates for Lancaster County and the State of Nebraska were lower than the US. The decrease in the death rate in the County was consistent with the downward trends for both the State and the Nation.

Figure 21: Prostate Cancer Deaths
Lancaster County, Nebraska & United States(1990-2001)



	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Lancaster County	40	23	21	29	47	44	19	31	30	29	29	28
Nebraska	34	33	35	34	32	34	25	31	29	27	30	N/A
United States	39	39	39	39	38	37	36	34	32	31	31	N/A

Rate per 100,000 population

Year

Age adjusted rate

Source: Lincoln-Lancaster County Health

Public Health Implications:

The American Cancer Society recommends that the prostate specific antigen (PSA) test and digital rectal examinations be offered annually, beginning at age 50 to men who have a life expectancy of at least 10 years. African American men and men with a close relative with prostate cancer are at high risk and should begin testing at age 45. Information about the benefits and limitations of early detection and treatment of prostate cancer should be provided so that informed decisions can be made about testing. The Centers for Disease Control and Prevention (CDC) does not recommend routine screening for prostate cancer although it does support discussion of the pros and cons of screening and treatment with their health care provider as a basis for informed decision making about screening.

The public health focus continues to be directed to surveillance and monitoring of the incidence and mortality from prostate cancer, support to research efforts on screening effectiveness, and services and programs to increase community awareness and knowledge of this disease. Within Lincoln and Lancaster County, community presentations, distribution of educational brochures and media releases have promoted increased awareness of the need for men at risk to discuss prostate cancer with their physician

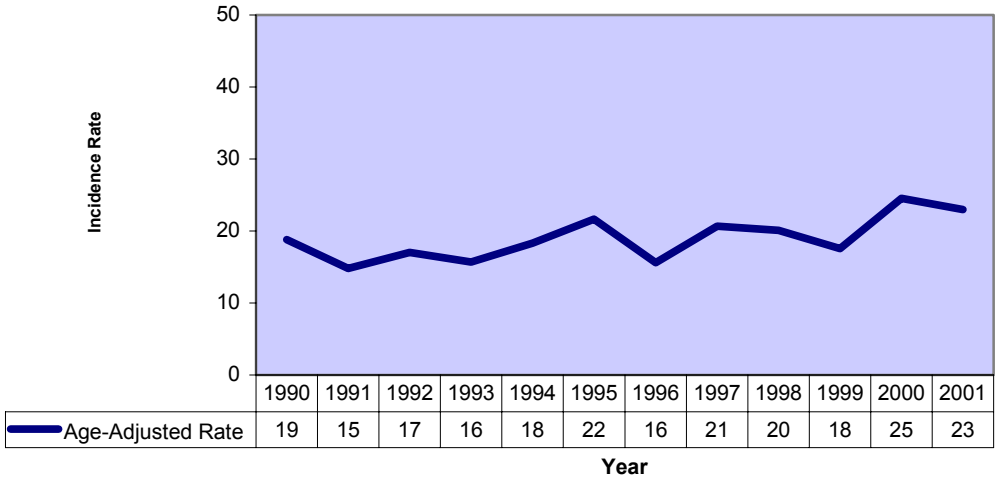
Urinary Bladder Cancer

Cancer of the urinary bladder is the fifth most common cancer in the United States. Each year, approximately 38,000 men and 15,000 women are diagnosed with bladder cancer. This is the fourth most common type of cancer in men and the eighth most common in women. Like almost any malignancy, bladder cancer is a multifactorial disease with both an environmental and genetic component. The most important known risk factor for bladder cancer is cigarette smoking; cigarette smokers develop bladder cancer two to three times more often than nonsmokers (Silverman et al., in press). Risk increases with amount smoked (number of packs per day), with moderate to heavy smokers experiencing two to five times the risk of nonsmokers. Quitting smoking is associated with a 30% to 60% decrease in risk. Smoking is estimated to be responsible for about 48% of the bladder cancers among men and 32% among women in the United States.

Urinary Bladder Cancer Incidence

Like the incidence rate of most cancers in Lancaster County, the bladder cancer incidence rate has not changed since 1990 (Figure 22). This trend was generally consistent with the trends of the State and the Nation (Figure 23).

Figure 22: Urinary Bladder Cancer Incidence Rates
Lancaster County (1990-2001)

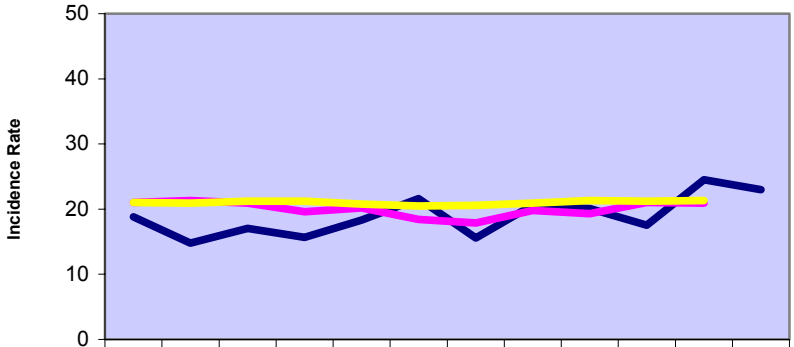


	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Age-Adjusted Rate	19	15	17	16	18	22	16	21	20	18	25	23

Rate per 100,000 population
Source: Lincoln-Lancaster County Health Department

Figure 23: Urinary Bladder Cancer Incidence

Lancaster County, Nebraska & US (1990-1999)



	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Lancaster County	19	15	17	16	18	22	16	21	20	18	25	23
Nebraska	21	21	21	20	20	18	18	20	19	21	21	N/A
United States	21	21	21	21	21	21	21	21	21	21	21	N/A

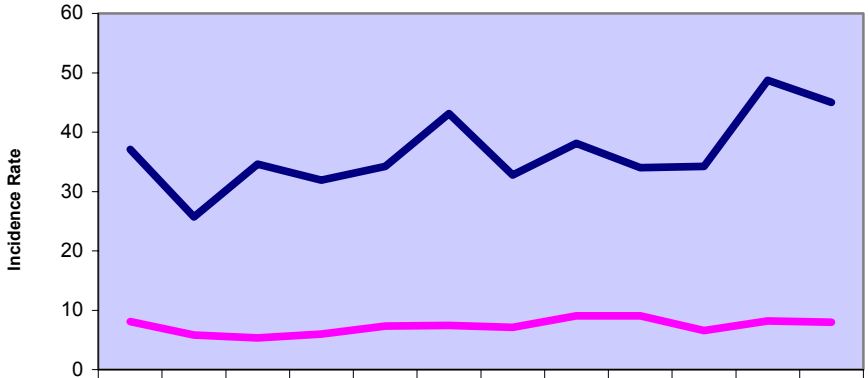
Rate per 100,000 population **Year** *Age-adjusted rate*

Source: Lincoln-Lancaster County Health Department

Men on average had a 5 times higher bladder cancer incidence rate than women. The average cancer incidence for men in the last 12 years was approximately 36 per 100,000 men population compared to 7 for every 100,000 women (Figure 24).

Figure 24: Urinary Bladder Cancer by Gender

Lancaster County (1990-2001)



	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Male	37	26	35	32	34	43	33	38	34	34	49	45
Female	8	6	5	6	7	7	7	9	9	7	8	8

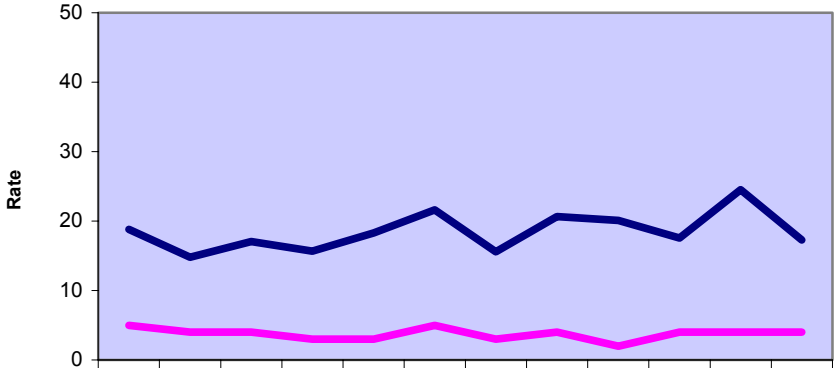
Rate per 100,000 population **Year** *Age-adjusted rate*

Source: Lincoln-Lancaster County Health Department

Bladder Cancer Death

Figure 25 portrays the incidence and death rates for bladder cancer in Lancaster County. Similar to the incidence rate, death rate has remained stable since 1990. Comparative death rates among Lancaster County, the State and the Nation are shown in Figure 26. All three places had similar death rates due to bladder cancer over the past 12 years, averaging 3-4 deaths per year for every 100,000 population.

Figure 25: Bladder Cancer Incidence & Death Rate
Lancaster County (1990-2001)

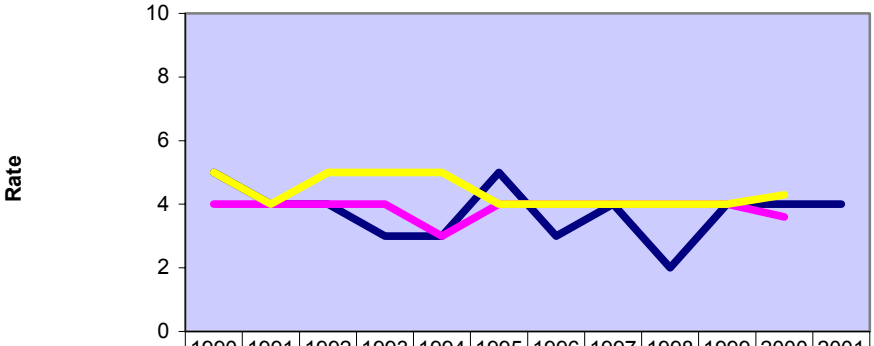


	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Incidence Rate	19	15	17	16	18	22	16	21	20	18	25	17
Death Rate	5	4	4	3	3	5	3	4	2	4	4	4

Rate per 100,000 population **Year** *Age adjusted*

Source: Lincoln-Lancaster County Health Department

Figure 26: Urinary Bladder Cancer Death Rate
Lancaster County, Nebraska & United States (1990-2001)



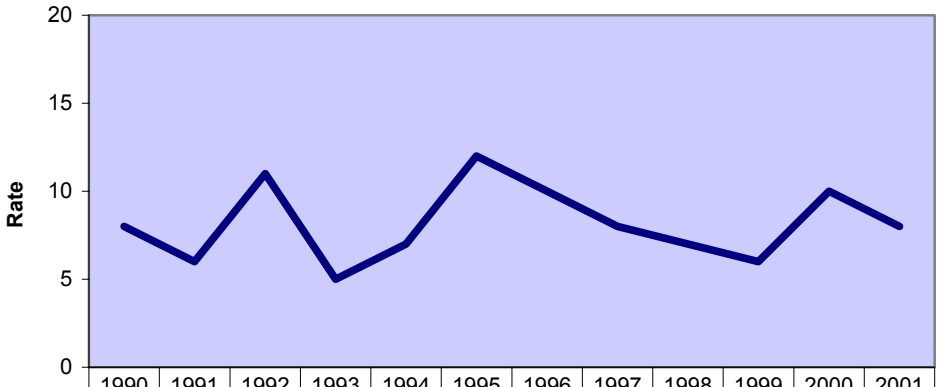
	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Lancaster County	5	4	4	3	3	5	3	4	2	4	4	4
Nebraska	4	4	4	4	3	4	4	4	4	4	4	N/A
United States	5	4	5	5	5	4	4	4	4	4	4	N/A

Rate per 100,000 population **Year** *Age adjusted rate*

Source: Lincoln-Lancaster County Health Department

Very high death rates due to bladder cancer were observed among men compared to women (Figure 27). The average death rate in a twelve-year period for men was 8 per 100,000 men, whereas for women it was 1 death per 100,000 women. This is probably due to the low incidence of the disease among women compared to men observed during the same time frame.

Figure 27: Urinary Bladder Cancer Death Rate by Gender
Lancaster County (1990-2001)



	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Male	8	6	11	5	7	12	10	8	7	6	10	8
Female	S	S	S	S	S	S	S	S	0	S	S	S

Rate per 100,000 population **Year** *Age adjusted rate*

Source: Lincoln-Lancaster County Health Department

S= Numbers too small to report

Public Health Implications:

As tobacco is the most important risk factor for urinary bladder cancer, public health strategies to decrease lung cancer will also decrease the cancer burden for urinary bladder cancer. Similarly, use of good work safety practices if involved with chemicals called aromatic amines will reduce work exposure. Studies have indicated that persons who drank at least 11 cups of fluid a day were half as likely to get bladder cancer as those who drank fewer than 6 cups a day. Continued efforts at surveillance, disease monitoring, and public awareness are essential public health functions.

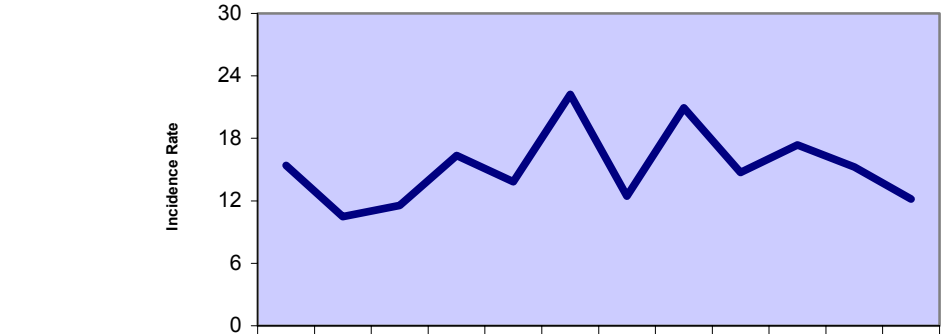
Malignant Melanoma of Skin

Melanoma is a disease of the skin in which cancer (malignant) cells are found in the cells that color the skin (melanocytes). Melanoma usually occurs in adults, but it may occasionally be found in children and adolescents. Risk factors include personal or family history of melanoma, presence of atypical moles, large number of moles, chronic sun exposure, freckles and sun-sensitive skin. Artificial sources of ultraviolet light, such as sun lamp and, tanning booths are also risk factors for skin cancer. Melanoma is a more serious type of cancer than the more common skin cancers. Each year in the United States, more than 53,600 people learn they have melanoma. Melanoma is becoming more common every year in this country. The percentage of people who develop melanoma has more than doubled in the past 30 years. Fortunately most melanomas can be prevented by minimization of sunlight exposure, particularly in the early years of life (i.e. from birth to age 20). Reduced ultraviolet exposure through avoidance of sunlight, particularly between 10 A.M – 4 P.M, use of protective clothing; hats and high sunlight protection factor (SPF) sunscreens are the basis for prevention of all forms of skin cancer.

Incidence of Malignant Melanoma

On an average, approximately 15 cases of melanoma were diagnosed in Lancaster County for every 100,000 people in each year. Other than 1995 and 1997, the incidence rate for this disease was stable since 1990 (Figure 28). These rates were consistent with the incidence rates of the State and the Nation (Figure 29).

Figure 28: Melanoma of Skin Incidence Rates
Lancaster County (1990-2001)



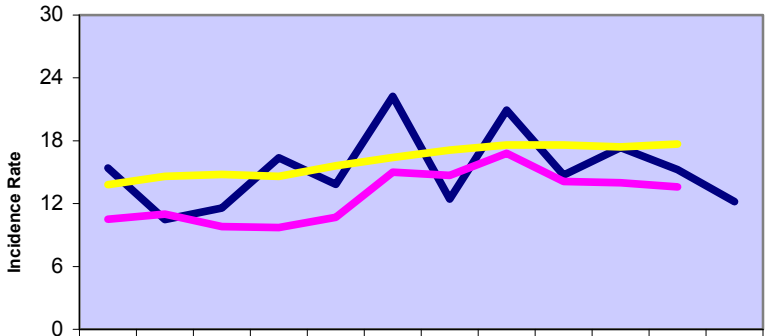
	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Age-Adjusted Rate	15	10	12	16	14	22	12	21	15	17	15	12

Rate per 100,000 population

Source: Lincoln-Lancaster County Health Department

More men were diagnosed with melanoma of the skin than women in Lancaster County. Although the incidence rate for both of these groups showed an inconsistent trend, the incidence rate for men showed a slight upward trend since 1990 (Figure 30).

Figure 29: Melanoma of Skin
Lancaster County, Nebraska & US (1990-2001)

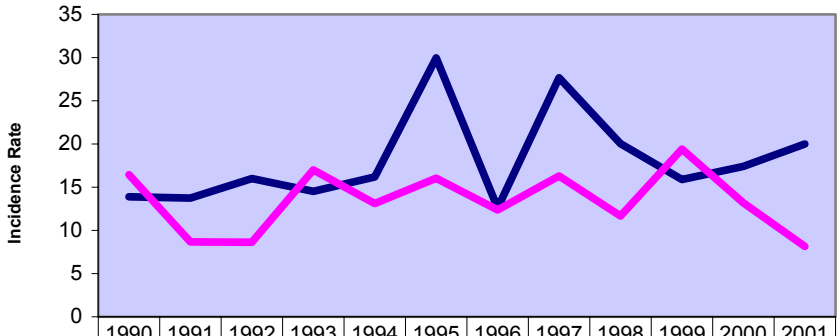


	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Lancaster County	15	10	12	16	14	22	12	21	15	17	15	12
Nebraska	11	11	10	10	11	15	15	17	14	14	14	N/A
United States	14	15	15	15	16	16	17	18	18	17	18	N/A

Rate per 100,000 population Year *Age-adjusted rate*

Source: Lincoln-Lancaster County Health Department

Figure 30: Melanoma of Skin by Gender
Lancaster County (1999-2001)



	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Male	14	14	16	15	16	30	13	28	20	16	17	20
Female	16	9	9	17	13	16	12	16	12	19	13	8

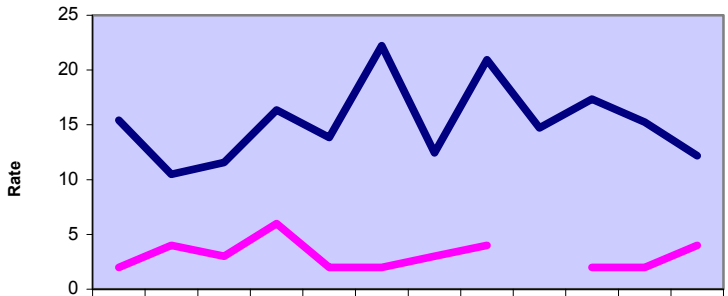
Rate per 100,000 population Year *Age-adjusted rate*

Source: Lincoln-Lancaster County Health Department

Figure 31 shows a comparison between the incidence and death rate due to melanoma of the skin in Lancaster County. Similar to the incidence rate, the death rate due to this disease remained stable since 1990. On an average, approximately 3 deaths were recorded every year due to this disease, resulting in an average incidence to average death ration of 5:1. Comparative death

rates are presented in Figure 32. Death rates for Lancaster County were consistent with the death rates for the State and the US. Deaths due to melanoma of the skin among men and women are also presented in Figure 33. The average death rate was somewhat higher among men than women.

Figure 31: Melanoma of Skin- Incidence & Death Rate
Lancaster County (1990-2001)



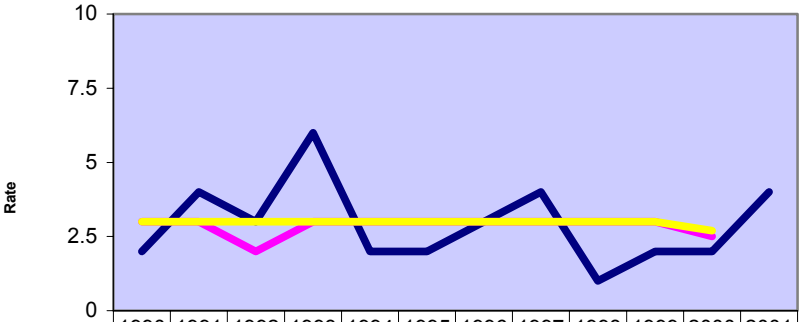
	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Incidence Rate	15	10	12	16	14	22	12	21	15	17	15	12
Death Rate	2	4	3	6	2	2	3	4	S	2	2	4

Year

Rate per 100,000 population *Age adjusted rate*

Source: Lincoln-Lancaster County Health Department *S= Numbers too small to report*

Figure 32: Melanoma of Skin deaths
Lancaster County, Nebraska & US (1990-2001)



	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Lancaster County	2	4	3	6	2	2	3	4	1	2	2	4
Nebraska	3	3	2	3	3	3	3	3	3	3	3	N/A
United States	3	3	3	3	3	3	3	3	3	3	3	N/A

Rate per 100,000 population Year *Age adjusted rate*

Source: Lincoln-Lancaster County Health Department

Public Health Implications:

Skin melanoma is one of most preventable and treatable of all cancers. It is well known that the incidence of this disease can be reduced by the use of protective measures against exposure to ultraviolet light. As most sunlight exposure occurs during childhood or adolescence, it is particularly essential that sun protection behaviors begin at an early age. A school intervention component focused on students in grades 9 through 12 may be particularly significant in promoting positive attitudes toward sun protection. Adults need to be aware of the importance of skin self-examination, recognition of the appearance or change in skin growths and the need to have suspicious lesions evaluated by a physician. Public health and community efforts to support educational campaigns on the dangers of sun exposure and tanning booths can assist in reducing the risk of skin cancer.

Appendix-i

Table 1: Cancer Incidence by Age Lancaster County 2001									
Rank	0-14	15-24	25-34	35-44	45-54	55-64	65-74	75-84	85+
1	Leukemia (4*)	Thyroid Cancer (14)	Skin Cancer (8)	Female Breast Cancer (75**)	Female Breast Cancer (218)	Female Breast Cancer (391)	Prostate Cancer (861)	Prostate Cancer (823)	Colorectal Cancer (523)
2	N/A	Malignant Neoplasm of Testis (12)	Malignant Neoplasm of Testis (5)	Colorectal Cancer (16)	Prostate Cancer (110***)	Prostate Cancer (389)	Female Breast Cancer (495)	Female Breast Cancer (777)	Female Breast Cancer (432)
3	N/A	Skin Cancer (4)	Thyroid Cancer (3)	Skin Cancer (13)	Colorectal Cancer (52)	Lung Cancer (117)	Lung Cancer (338)	Lung Cancer (397)	Lung Cancer (203)
4	N/A	N/A	N/A	Lung Cancer (11)	Lung Cancer (27)	Colorectal Cancer (106)	Colorectal Cancer (158)	Colorectal Cancer (387)	Urinary Bladder Cancer (203)
5	N/A	N/A	N/A	Malignant Neoplasm of Lymph Node (8)	Skin Cancer (21)	Malignant Neoplasm of Lymph Node (39)	Urinary Bladder Cancer (158)	Urinary Bladder Cancer (118)	Malignant Neoplasm of Pancreas (203)

**Incidence Rate per 100,000 population* *Lincoln-Lancaster County Health Department*
*** Incidence Rate per 100,000 male population*
**** Incidence Rate per 100,000 male population*

Table:2 Five Leading Cancer Incidence by Gender Lancaster County 2001		
Rank	Male	Female
1	Prostate Cancer (113*)	Breast Cancer (142)
2	Lung Cancer (50)	Lung Cancer (47)
3	Colorectal Cancer (40)	Colorectal Cancer (53)
4	Leukemia (18)	Malignant Neoplasm of Uterus (26)
5	Skin Cancer (18)	Malignant Neoplasm of Ovary (15)

Lincoln-Lancaster County Health Department
**Incidence Rate per 100,000 male population*
*** Incidence Rate per 100,000 female population*

Appendix-ii

Table 3: Cancer Deaths by Age Lancaster County 2001									
Rank	0-14	15-24	25-34	35-44	45-54	55-64	65-74	75-84	85+
1	N/A	N/A	Leukemia* (3)	Female Breast Cancer** (16)	Lung Cancer (31)	Lung Cancer (117)	Lung Cancer (240)	Lung Cancer (430)	Prostate Cancer (673)
2	N/A	N/A	Colorectal Cancer (3)	Lung Cancer (11)	Female Breast Cancer (24)	Female Breast Cancer (43)	Female Breast Cancer (178)	Prostate Cancer*** (247)	Lung Cancer (349)
3	N/A	N/A	N/A	N/A	Colorectal Cancer (9)	Uterine Cancer (33)	Prostate Cancer (99)	Malignant Neoplasm of Pancreas (97)	Colorectal Cancer (320)
4	N/A	N/A	N/A	N/A	Malignant Neoplasm of Lymph Node (9)	Skin Cancer (22)	Malignant Neoplasm of Pancreas (83)	Malignant Neoplasm of Lymph Node (97)	Female Breast Cancer (157)
5	N/A	N/A	N/A	N/A	Skin Cancer (6)	Malignant Neoplasm of Pancreas (17)	Brain Cancer (53)	Colorectal Cancer (86)	Malignant Neoplasm of Pancreas (87)

**Incidence Rate per 100,000 population*
*** Incidence Rate per 100,000 male population*
**** Incidence Rate per 100,000 male population*

Lincoln-Lancaster County Health Department

Table 4: Five Leading Cancer Deaths by Gender Lancaster County 2001		
Rank	Male	Female
1	Lung Cancer (54)	Lung Cancer (43)
2	Prostate Cancer (17)	Female Brest Cancer (25)
3	Malignant Neoplasm of Pancreas (13)	Colon Cancer (12)
4	Colon Cancer (12)	Ovarian Cancer (9)
5	Malignant Neoplasm of Lymph Node (8)	Malignant Neoplasm of Pancreas (9)

Lincoln-Lancaster County Health Department
** Incidence Rate per 100,000 male population*
*** Incidence Rate per 100,000 male population*

Appendix-iii

Table 5: Number of Cancer Cases Diagnosed by Major Primary Site Lancaster County 2001												
Year	**1990**	**1991**	**1992**	**1993**	**1994**	**1995**	**1996**	**1997**	**1998**	**1999**	**2000**	**2001**
Cancer Site												
Lung Cancer	110	98	100	106	104	122	122	118	111	141	133	123
Colorectal Cancer	101	120	102	102	105	97	118	119	134	130	124	116
Female Breast Cancer	136	136	123	129	161	150	152	149	162	165	163	178
Prostate Cancer	135	148	148	153	164	137	139	153	157	158	132	141
Bladder Cancer	34	26	32	30	34	41	31	41	41	36	52	49
Skin Melanoma	29	21	22	32	27	46	25	43	32	38	35	28

Lincoln-Lancaster County Health Department